

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

Listing of claims:

Claim 1. (Withdrawn) An isolated polypeptide having β,β -carotene 15,15'-monooxygenase activity comprising SEQ ID NO: 1 or a polypeptide having β,β -carotene 15,15'-monooxygenase activity and being at least 60% homologous to SEQ ID NO: 1 as determined by the Wisconsin Sequence Analysis Package GCG, Version 9.1 (1997).

Claim 2. (Withdrawn) An isolated polypeptide according to claim 1 wherein the polypeptide is at least 70% homologous to SEQ ID NO: 1.

Claim 3. (Withdrawn) An isolated polypeptide according to claim 1 wherein the polypeptide is at least 80% homologous to SEQ ID NO: 1.

Claim 4. (Withdrawn) An isolated polypeptide according to claim 1 wherein the polypeptide is at least 90% homologous to SEQ ID NO: 1.

Claim 5. (Withdrawn) An isolated polypeptide according to claim 1 which is derived from chicken.

Claim 6. (Previously amended) An isolated nucleic acid sequence encoding a polypeptide having β,β -carotene 15,15'-monooxygenase activity comprising SEQ ID NO: 1 or a polypeptide having β,β -carotene 15,15'-monooxygenase activity and being at least 80% homologous to SEQ ID NO: 1 as determined by the Wisconsin Sequence Analysis Package GCG, Version 9.1 (1997).

Claim 7. (Original) An isolated nucleic acid sequence according to claim 6 which comprises SEQ ID NO: 2 or a fragment thereof.

Claim 8-9. (Previously cancelled).

Claim 10. (Original) An isolated nucleic acid sequence according to claim 6 wherein the nucleic acid is a deoxyribonucleic acid.

Claim 11. (Previously amended) An isolated nucleic acid sequence comprising an antisense ribonucleic acid, which binds to the nucleic acid sequence according to claim 6.

Claim 12. (Currently amended) A primer for amplifying a polynucleotide ~~gene~~ coding for a polypeptide having β,β -carotene 15,15'-monooxygenase activity which primer consists essentially of ~~comprises~~ a fragment of the nucleic acid sequence according to claim 6.

Claim 13. (Currently amended) A probe for detecting a polynucleotide gene coding for a polypeptide having β,β -carotene 15,15'-monooxygenase activity which probe consists essentially of ~~comprises~~ a fragment of the nucleic acid sequence according to claim 6.

Claim 14. (Currently amended) A test kit for amplifying and/or detecting a polynucleotide gene or a fragment thereof coding for β,β -carotene 15,15'-monooxygenase wherein the test kit comprises at least one primer according to claim 12.

Claim 15. (Currently amended) A test kit for amplifying and/or detecting a polynucleotide gene or a fragment thereof coding for β,β -carotene 15,15'-monooxygenase wherein the test kit comprises at least one probe according to claim 13.

Claim 16. (Withdrawn) An antibody which specifically reacts with a polypeptide according to claim 1.

Claim 17. (Withdrawn) An immunoassay for the detection and/or quantification of β,β -carotene 15,15'-monooxygenase which comprises at least one antibody according to claim 16.

Claim 18. (Withdrawn) A process for the production of vitamin A comprising enzymatically cleaving β -carotene with a polypeptide according to claim 1.

Claim 19. (Previously amended) A method for introducing a β , β -carotene 15,15'-monooxygenase cDNA into a host cell comprising introducing a cDNA coding for a polypeptide having β , β -carotene 15,15'-monooxygenase activity comprising SEQ ID NO: 1 or a polypeptide having β , β -carotene 15,15'-monooxygenase activity and being at least 80% homologous to SEQ ID NO: 1 as determined by the Wisconsin Sequence Analysis Package GCG, Version 9.1 (1997) into a vector suitable for the host cell and introducing the vector into the host cell.

Claim 20. (Original) A method according to claim 19 wherein the host cell is a plant cell.

Claim 21. (Original) A method according to claim 19 wherein the host cell is a prokaryotic cell.

Claim 22. (Original) A method according to claim 19 wherein the host cell is a yeast cell or a fungal cell.

Claim 23. (Original) A method according to claim 19 wherein the host cell is an alga cell.

Claim 24. (Original) A method according to claim 19 wherein the host cell is a mammalian cell.

Claim 25. (Original) A method according to claim 24 wherein the mammalian cell is a human cell.

Claim 26. (Original) A host cell obtained by the method of claim 19.

Claim 27. (Original) A host cell according to claim 26 which comprises a β,β -carotene 15,15'-monooxygenase cDNA obtained from another species.

Claims 28-30. (Previously cancelled).

Claim 31. (Previously amended) A vector comprising a polynucleotide encoding a polypeptide having β,β -carotene 15,15'-monooxygenase activity comprising SEQ ID NO: 1 or a polypeptide having β,β -carotene 15,15'-monooxygenase activity and being at least 80% homologous to SEQ ID NO: 1 as determined by the Wisconsin Sequence Analysis Package GCG, Version 9.1 (1997).

Claim 32. (Previously amended) A host cell transformed with the vector of claim 31.

Claim 33. (Withdrawn) An isolated polypeptide having β,β -carotene 15,15'-monooxygenase activity comprising SEQ ID Nos: 1 or 4.

Claims 34-36 (Previously cancelled).

Claim 37 (Previously presented) An isolated nucleic acid sequence according to claim 6, wherein the polypeptide is at least 90% homologous to SEQ ID NO: 1.